DOCUMENT RESUME

ED 253 086 FL 014 822

AUTHOR Danesi, Marcel
TITLE A Guide to Puzzles and Games in Second Language Pedagogy. Language and Literacy Series.
INSTITUTION Ontario Inst. for Studies in Education, Toronto.
REPORT NO ISBN-0-7744-0289-X
PUB DATE 85
NOTE 66p.
AVAILABLE FROM Publication Sales, Ontario Institute for Studies in Education, 252 Bloor Street West, Toronto, Ontario M 5S1V6.
PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Class Activities; Classroom Techniques; Elementary Secondary Education; *Games; Instructional Materials; *Media Selection; *Puzzles; *Second Language Instruction; Student Motivation

ABSTRACT

This guide presents, discusses and describes a selection of games and puzzles for school second language instruction. The first chapter discusses the value of these activities in language teaching, including the psychology of problem-solving, the process of motivating and involving students, three key questions to ask about games in the classroom (What constitutes their enjoyment? What role does the teacher play? What evidence exists to show they are effective?), and literature on using them. Subsequent chapters outline the characteristics of puzzles and games in terms of three general language instruction objectives: knowledge of specifics, knowledge of entire messages, and development of communication skills. The activities listed include discrete-point puzzles (scrambled letters and words, crosswords, word searches, word tic-tac-toe, word mazes, match-ups, cryptograms, associations, word-wheels, and visual puzzles), global puzzles (riddles, word tricks, logic problems, and mathematical puzzles), and interactional games (games and classroom communication, games based on discrete-point/global puzzles, well-known games, and teacher-made games of any type). A list of references is also included. (MSE)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

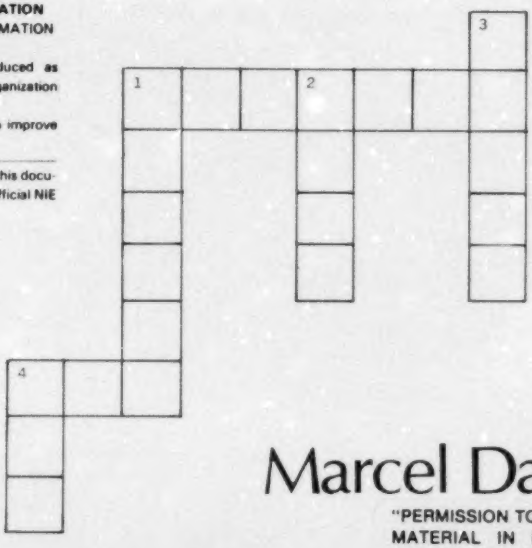
ED253086

A Guide to Puzzles and Games in Second Language Pedagogy

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

- This document has been reproduced as received from the person or organization originating it.
- Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.



Marcel Danesi

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

OISE

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

FL014822

A Guide to Puzzles and Games in Second Language Pedagogy

Marcel Danesi

Language and Literacy Series

General Editors

Jim Cummins
Sharon Lapkin
Merrill Swain

OISE Press
The Ontario Institute for Studies in Education

The Ontario Institute for Studies in Education has three prime functions: to conduct programs of graduate study in education, to undertake research in education, and to assist in the implementation of the findings of educational studies. The Institute is a college chartered by an Act of the Ontario Legislature in 1965. It is affiliated with the University of Toronto for graduate studies purposes.

The publications program of the Institute has been established to make available information and materials arising from studies in education, to foster the spirit of critical inquiry, and to provide a forum for the exchange of ideas about education. The opinions expressed should be viewed as those of the contributors.

©The Ontario Institute for Studies in Education 1985
252 Bloor Street West, Toronto, Ontario M5S 1V6

All rights reserved. No part of this publication may be reproduced in any form without permission from the publisher, except for brief passages quoted for review purposes.

Canadian Cataloguing in Publication Data

Danesi, Marcel, 1946-
A guide to puzzles and games in second language pedagogy

(Language and literacy series)
Co-published by: Ontario Institute for Studies in Education.
Bibliography: p.
ISBN 0-7744-0289-X

1. Language and languages — Study and teaching. 2. Educational games. 3. Puzzles. I. Ontario Institute for Studies in Education. II. Title III. Series.

P53.D35 1985 407 C84-099760-4

ISBN 0-7744-0289-X Printed in Canada

1 2 3 4 5 TO 98 88 78 68 58

Contents

Foreword / vii

Preface / ix

1. Why Puzzles and Games in Language Teaching? / 1
The Psychology of Problem-Solving / 2
Motivating and Involving Students / 6
Some Key Questions / 7
What Kinds of Puzzles and Games? / 8

2. Discrete-Point Puzzles / 11
Scrambled Letters and Words / 12
Crosswords / 15
Word-Searches / 19
Word Tic-Tac-Toe / 22
Word Mazes / 23
Match-Ups / 25
Cryptograms / 26
Associations / 28
Word-Wheels / 29
Visual Puzzles /30

3. Global Puzzles / 33
Riddles / 34
Word Tricks / 35
Logic Problems / 36
Mathematical Puzzles / 40

4. Interactional Games / 41
Games and Classroom Communication / 41
Games Based on Discrete-Point/Global Puzzles / 42
"Well-Known" Games / 46
Teacher-Made Games of Any Type / 49

5. Concluding Remarks / 51

References / 53

Foreword

Discussions on "language across the curriculum" have become commonplace among educators since the publication of the Bullock Report *A Language for Life* (London, HMSO, 1975) in 1975. The central argument of the Bullock Report — that the teaching of language should be integrated with all aspects of the school curriculum — is now widely accepted, and many teachers, principals, and administrators are currently working to develop and implement school language policies.

However, the phenomenon of language, which seems relatively straightforward when we take it for granted and just use it, becomes enormously complex when we begin to analyse it in depth and probe the relationships between what are generally regarded as its component parts, that is, listening, speaking, reading, and writing. For example, most educators assume that a good basis in "oral language" is necessary for successful initial reading; yet research findings on this issue are not entirely consistent, some showing strong relationships between reading and oral language skills, while others find only weak relationships. The reason for this, of course, is that the term "oral language" can encompass a bewildering array of different skills whose interrelationships are anything but clear. For example, how is the grammatical accuracy of speech related to appropriateness of use in different contexts, or range of vocabulary related to fluency?

The relationships between reading and writing are no more clear that those between "oral language" and reading, with educational theorists and researchers proposing several different views. While the four broad language skills are obviously interrelated in some ways, there are other ways in which they are clearly independent; for example, knowing how to speak does not guarantee that a child will be successful in acquiring reading and writing skills. What this implies for educators is that without a clear conception of the nature of "language proficiency," and the ways in which its component parts are related to each other, it becomes extremely difficult to formulate a coherent policy on how language should be integrated with other aspects of the curriculum.

Issues related to language and literacy become ever murkier when we add concerns about second-language acquisition and first-language maintenance among both children from linguistic minorities as well as those from the majority language group. As a result of considerable research during the past two decades we can be reasonably confident

about some educational generalizations in regard to second-language programs. For example, we know that French immersion programs are considerably more effective in promoting French skills than traditional French-as-a-second-language programs. However, when we probe beneath the surface of these research studies, we are faced with the same issues that remain largely unresolved in first-language pedagogy. For example, the question of how long it takes an immigrant child to learn English, which has obvious policy implications both for the provision of ESL services and for psychological assessment, depends upon what we mean by "learning English." Understanding *why* immersion programs succeed in developing second-language skills so much more rapidly than traditional second-language programs involves understanding the nature of language and how it is acquired in first-language contexts.

The aim of the present series is to assist educators (including parents) to explore these issues concerning the nature and development of language and literacy. We hope not only to provide information in a straightforward and accessible form, but also to stimulate ideas and discussion about how the information or "facts" are related to each other and how they can be explained. In other words, we hope to stimulate the process of developing and refining theory because "facts" become relevant for both policy and practice only when they are integrated within a coherent theoretical framework.

All educational policy and practice is based on theory. Often, however, these theories are implicit, or are based on assumptions whose validity is questionable. One of the reasons for this is that researchers publish their findings in scholarly journals in a language that can often be understood only by other researchers. Practitioners are therefore largely excluded from access to these findings. Consequently, and appropriately, they base their practice on assumptions and intuitions derived from experience. However, implicit theories or assumptions unsupported by data are usually not sufficient to persuade others that changes in policy or practice are desirable. Information that can be generalized is required. Such information can serve either to confirm assumptions and intuitions or alternatively to cause them to be questioned.

Thus, we hope that the present series of monographs will contribute to the generation of new theoretical ideas and practical applications in the general areas of language and literacy. Although each monograph is devoted to a specific issue, we anticipate that collectively they will help define the dimensions of language and literacy in both bilingual and monolingual contexts.

Jim Cummins
Sharon Lapkin
Merrill Swain
Series Editors

Preface

As the well-known puzzlist Martin Gardner (1971:ix) wrote: "There is no better way to relieve the tedium than by injecting recreational topics in a course, topics strongly tinged with elements of play, humor, beauty and surprise." Although this statement was made in connection with the teaching of mathematics, I believe it applies as well to the teaching of second languages. Indeed, the classroom experiences of many teachers have made it clear that students of all ages enjoy doing puzzle activities immensely, and that such activities are useful in promoting learning. For this reason, it should come as no surprise to find that language instruction manuals published in recent years are beginning to include activities such as crosswords, acrostics, and so on, as regular features.

After more than a decade of utilizing puzzles to teach language courses at the University of Toronto, and on the basis of the research I have conducted on the use of puzzles in heritage language programs (Danesi 1983), I thought it might now be time to share my ideas with other second language teachers. It is my hope that this book will stimulate teachers and curriculum writers to consider adopting problem-solving activities as regular features in their programs.

I would like to thank the many colleagues and students who have provided me with valuable feedback over the years. There are simply too many to mention here. I am particularly grateful to the editors of the *Language and Literacy Series*, Merrill Swain, Sharon Lapkin, and James Cummins, for having encouraged me to put down my ideas into print. I would also like to express my deep appreciation to Dr. H. H. Stern whose expert comments on the manuscript of this book have allowed me to make substantive improvements. Needless to say, any infelicities that this book contains are my sole responsibility.

Marcel Danesi
University of Toronto

To
Danila
the best puzzle-solver around!

1

Why Puzzles and Games in Language Teaching?

If, then, puzzles not only bring us pleasure but also help us to work and learn more effectively, is it not worthwhile to learn to do them well?
Fixx (1978:18)

Teachers and educators seem to be continually searching for ways to enhance the learning of the target language and its communicative uses. But, as day-to-day classroom experience seems to demonstrate continually, some things never change. Like the practice routines employed in learning to play a musical instrument properly, the exercises and activities designed to allow learners to practice, understand, and hopefully control what has been taught or introduced in a curriculum appear to be highly useful, if not indispensable, learning devices in formal school environments. The form and content of language exercises and activities normally reflect the pedagogical method adopted or the educational philosophy of the teacher. Thus, for example, courses oriented towards a grammar-translation methodology will contain a large number of exercises involving translation; courses based on behaviorist models of language learning will utilize pattern-practice drills; courses geared towards the development of communicative competence will employ a great deal of oral and "thematic" exercises based on interactional situations; and so on.In language teaching theory, the conditions of practice have, in fact, given rise to much discussion and investigation. As Stern (1983:311) accurately points out, "the importance to be attributed to 'drill' or other forms of practice, the nature of the practice tasks, the degree of intensity of practice, the techniques which would be helpful to transfer classroom learning to genuine communication have been among much debated issues."

Recently, the language teaching literature has documented a widespread trend away from the use of specific methodologies towards

more flexible approaches. Teachers and textbook writers seem to be selecting, more and more, any pedagogical strategy which appears to fit a specific learning task best. The type of exercise material chosen or constructed (for example, translations and drills) is sensitive to such factors as the learners' abilities and background, the nature of the learning task, and so on. In my view, and in that of a growing number of educators, the exercises and activities that seem to be particularly effective in promoting learning are language-based puzzles and games. These seem to be quite adaptable to many of the practice needs that characterize daily classroom routine.

It is fair, however, to point out that although the literature seems to have given a blanket endorsement to the use of games in language teaching, some questions as to their usefulness have been raised, especially in a recent key article by Palmer and Rodgers (1983). My purpose in this chapter, therefore, is to look at puzzles and games from psychological and educational standpoints, hoping to answer the question of *why* they might be useful in second language methodology. I will discuss briefly what psychologists and educators have to say about the use of problem-solving activities in education, and then I will examine the questions raised by Palmer and Rodgers. The second chapter will describe those puzzles that can be constructed on the units or "discrete points" of the target language, while the third chapter will deal with puzzles based on global comprehension. In the fourth chapter, I will look at interactional games involving problem-solving strategies that students can play in the classroom. I will attempt to make clear in these chapters what the teacher should look for in terms of specific learning goals. My intention is to provide teachers with an overview of puzzle and game activities so that they may easily adapt them to their own programs. I will use English as the primary target language for the sake of argument and exposition. Some prototypical examples in French, Italian, German, and Spanish are also provided. The construction principles discussed are, needless to say, applicable to any language.

The Psychology of Problem-Solving

What are puzzles and games? Psychologists define them as problem-solving activities, that is, they are examples of behavior involving thought directed towards the attainment of a solution to a problem posed in some recreational fashion. Thus, for instance, in solving anagrams — words whose letters have been scrambled — the activity involved is the reconstruction of words; for example, BTLEA = *table*. Crosswords, jigsaw puzzles, logic problems, and so on, are all activities of this kind. Rodgers (1981) identifies five basic characteristics of games which are worth mentioning here:

(1) They are *competitive*.

(2) They are *rule-governed*, that is, they have a limited number of specific and clearly defined rules.
(3) They are *goal-defined*, having a limited number of specific and well-defined objectives.
(4) They have *closure*, that is, there is a predetermined point at which a game is finished.
(5) They are *engaging* in that they seem to challenge and engage the participants.

For the purposes of this book, it is useful to make a distinction between puzzles and games. *Language teaching puzzles* can be defined as problem-solving activities requiring the individual learner to formulate a solution; *language teaching games*, on the other hand, can be defined as problem-solving activities involving interaction among learners.

The question that comes immediately to mind with respect to these activities is whether or not they belong in the language classroom. It is assumed by writers on games that they foster learning through recreation. However, as Palmer and Rodgers (1983:5) point out, it has been observed that the competitive element introduced into a classroom situation by game-playing might not be appropriate for all learners: "Different groups and individuals respond differently to kinds and degrees of competition, and often the fine-tuning of the variables is critical in game acceptance and success." I will return to this issue in a later section.

To the best of my knowledge, almost no data exist regarding the instructional effectiveness of puzzles and games. One has to rely on the classroom impressions of teachers. It is, nevertheless, useful to look at research on gaming strategies in other areas of education. Two lines of investigation characterize this kind of research: the effect of game-playing on learning and the motivational effects produced by recreational activities. I will deal with the first in this section and with the second in the next. It must be kept in mind, however, that although this research proves to be revealing, it was not designed to answer the question of whether or not game-playing promotes language learning.

The numerous studies on game-playing in education point, in general, to their effectiveness. There are, however, at least three variables which enter into the picture. Firstly, it seems that student abilities prior to the use of games influence the results obtained from game-playing. Edwards, Devries, and Snyder (1972), for instance, found that average-ability students of mathematics taught by games performed better on creative tasks than did those taught by more conventional techniques, whereas low-ability students required practice with the specific game in order to improve their performance. This suggests that game-playing should be used in conjunction with specific learning tasks, especially for low-ability learners. Secondly, better results are obtained from

game-playing when it is clearly understood by the students and is integrated with other techniques. Kidder and Guthrie (1972), for example, found no difference between a group of children taught by a lecture method and a group taught by a game method in general. However, if the game method was rehearsed, significant gains were observed for the group instructed with the game method. In a review of ten classroom experiments on game-playing, De Vries and Slavin (1978) concluded that when games are used together with more traditional teaching methods, learning is increased for a wide variety of student types. Thirdly, the types of games used also appear to affect learning. Livingston and Kidder (1973) found that structured games contributed significantly to learning effectiveness.

What can language teachers infer from this line of research? First of all, there is no apparent reason to consider language learning to be radically different from any other kind of learning. It seems logical to me that it can be assumed that the same kinds of benefits documented in other areas of education vis-à-vis game-playing will apply as well to language learning. Obviously, research is needed in this area. Secondly, the literature suggests quite strongly that game-playing should always be structured and used together with more conventional methods. Finally, the research saliently demonstrates that games should be selected according to the abilities of the students. This means that game-playing is applicable at all levels of education, from elementary school to university, but that the specific type of activity should be tailored to the age and capabilities of the students. Problems that students cannot understand in their own language are, needless to say, totally inappropriate.

The question of why puzzles and games might be effective in promoting language learning is suggested as well by the general research into problem-solving and language. Dakin (1973), for instance, has argued that when learners encounter a new way of coding a meaning distinction in the new language, they essentially apply problem-solving strategies to make sense of it. As Glucksberg and Danks (1975:195) observe: "When we have a difficult problem to solve, we often talk to ourselves. How we think about a problem can often be influenced by the words we use to describe it." Logic puzzles in particular activate a process of reasoning which, as Scribner (1977:497) indicates, "involves relating or integrating the information presented in the individual sentences and assimilating it to existing lexical and non-lexical knowledge schemas." These general observations suggest that problem-solving in the target language might be of some benefit. Being required to find a solution in the new linguistic medium, learners are, in effect, forced to "think" to some extent in the new language because their attention is focussed on finding a solution rather than on the language data *per se*.

As I have attempted to argue elsewhere (Danesi 1980), the crucial

components associated with solving puzzles can be summarized as: (1) comprehension, (2) reasoning, and (3) formulation. The first task of the learner is obviously to determine *what* is required. As the psychologists Sternberg and Davidson (1982:37) have discovered in their research, this is essentially a comprehension task requiring the selection and encoding of information, that is, the ability "to understand what information is relevant to solving the problem, and how it is relevant." Even in a simple task like solving anagrams, the learner must first of all understand what is required — finding a target language word — and how to go about it — combining letters according to the orthographical and pronunciation patterns of the language being learned. The learner must then assess the information and develop a solution strategy. This is a reasoning process which, as psychological experiments show (for example, Huttenlocker 1968, Clark 1969, Sternberg 1978, 1979a, 1979b), probably involves a mixture of verbal and spatial thinking. Finally, when the learner has found a solution, the task then becomes one of formulating the answer in the target language.

The comprehension and formulation components clearly involve the target language directly. It is, however, difficult to ascertain if the reasoning involved during the working out of a solution strategy occurs in the new language. In a "casual" experiment I conducted at the University of Toronto several years ago, I was able to determine to some extent that the language used in thinking about the solution depends on the type of puzzle. I administered a test containing both discrete-point and global puzzles — to be discussed in the next two chapters — to slightly over one hundred beginning students of Italian; and then I asked them to mark down what language they used — English or Italian — to arrive at a solution. Predictably, all students said they "thought" only in Italian to solve discrete-point puzzles (anagrams, crosswords, and so on). However, no consensus was reached as to whether the students thought in English or Italian to solve global puzzles (for example, logic puzzles). Many claimed that both languages were used to some extent.

To illustrate how these components might work in solving puzzles, consider the following typical logic problem (Sternberg 1979b:47):

(1) John is not as tall as Pete.
(2) Bill is not as short as Pete.
(3) Who is the tallest?

The first thing one must do in order to solve this problem is to understand what is required — the construction of a height arrangement among John, Pete, and Bill. It seems that the use of verbal or spatial reasoning depends essentially on an individual's pattern of abilities. Someone who is particularly good at visualizing relationships might solve this problem by arranging the three people in a hierarchy: Bill at the top, followed by Pete, and then by John. A person who is high

in verbal ability might imagine the problem as a kind of syllogism: Pete is taller than John; Bill is taller than Pete; therefore it follows that Bill is taller than Pete or John.

The point I wish to emphasize here is that the activation of these kinds of reasoning strategies in terms of the target language is a highly desirable goal. However, a question does arise when considering the usefulness of some types of puzzles such as anagrams. Although unscrambling letters to reconstruct words with which they are thoroughly familiar may be a challenge to native speakers, it is not at all clear how beneficial this might be to someone who is just learning the word and its spelling. Such puzzles are probably more useful as review or recall activities. This issue will come up again in later chapters.

Motivating and Involving Students

As mentioned above, the second line of research associated with game-playing is that they can enliven the learning task and motivate students to perform better. Once again, the research in other areas of education can be consulted on this point. In a review of classroom experiments with game-playing, Bredemeier and Greenblat (1981) concluded that game-playing seems to be more effective than traditional methods of instruction in fostering positive attitude changes towards the subject being taught. Reid (1980) reached a similar conclusion from his own survey of the research literature. Classroom experience seems to suggest that this is true as well in the case of language teaching. Used to diversify the kinds of drills found in language manuals that students are accustomed to doing, puzzles and games seem to stimulate interest and participation in a course because they constitute a form of play and recreation. As Latorre and Baeza (1975:45) point out, puzzles "have long been accepted in language teaching as a means of relieving the students of much of the strain which results from work demanding concentrated attention."

A warning must, however, be issued in using such activities solely as recreational devices. As Omaggio (1982) stresses, they should be used *judiciously* and constructed with specific instructional objectives in mind. To quote Latorre and Baeza (1975:46) again, puzzles should have "a definite linguistic aim along with their function as a welcome change of activity." If puzzles and games are used only to fill in time, both the teacher and the students will soon lose interest in them. But if they are integrated into a basic program, it is highly likely that they will be enjoyed, promoting a lively and uninhibited learning environment. This in turn will result in a more positive attitude towards the language being studied.

A second warning that must be voiced as well is that "too much of

a good thing is bad." Clearly, a language course should not be transformed into a course in problem-solving. Puzzles and games, like any kind of instructional device, should be used together with other techniques. Even though it seems that these activities have a wide appeal, it cannot be assumed that everybody will be motivated by them at all times.

Finally, to keep the motivational value high, the teacher should always make sure that puzzles and games are likely to be understood, enjoyed, and solved by most students. In other words, they should be "synchronized" with the students' intellectual abilities and level of linguistic/communicative competence. The description of the puzzles and games in subsequent chapters will allow the teacher to decide if a particular activity is appropriate in a specific situation. Many of the activities can be simplified or made more difficult to reflect the age and capabilities of the students. These activities are therefore applicable to all levels of education. Teachers should also expect errors as an inevitable part of problem-solving. The idea is not necessarily to get the right answer, but to be challenged. This, as Hovanec (1978:10) observes, constitutes the very nature of puzzles: "Throughout history, puzzle constructors have striven to produce puzzles that simultaneously conceal the answers yet cry out to be solved, while solvers have risen to the challenge of pitting their own ingenuity against that of the constructors. The underlying assumption is that both will derive pleasure from their pastime." Needless to say, errors and wrong guesses should be treated as any error in the classroom — as an integral part of the learning process.

Some Key Questions

In their discriminating article, Palmer and Rodgers (1983) raise three key questions concerning the use of games in language education. These can be stated as follows: What in a game constitutes its enjoyment? What role does the teacher play? What evidence exists to show that they are really effective?

The question of enjoyment is a difficult one to answer. As already mentioned, not everyone will enjoy solving puzzles. However, the classroom experiences of many teachers suggest that some kinds of games are enjoyed by the majority of learners. There are very few students, for example, who do not enjoy solving crossword puzzles. Perhaps the only way to determine which specific puzzle or game is suitable for a particular group of learners is to try it out.

This leads directly to the second issue raised by Palmer and Rodgers, namely, the role played by the teacher. First and foremost, the teacher should be familiar with the specific game used and with its instructional relevance. As Cruickshank and Telfer (1980) point out, teacher unfamiliarity with gaming and its instructional relevance is probably

the most critical cause of teacher misgivings about gaming. Palmer and Rodgers (1983:10) suggest quite appropriately that from the perspective of the teacher, game-playing "may be doubly threatening in that the language teacher is being simultaneously urged to take on a new focus in language instruction (communicativity) as well as a new procedure (game-playing)." The answer to this is probably what I have suggested in the previous section: game-playing will be more reassuring and successful when its objectives are defined and when it is integrated into a conventional program. Palmer and Rodgers (1983:10) reach a similar conclusion: "if an activity involves reasonably familiar classroom procedures involving reasonably familiar instructional goals. . . , then initial teacher and student *Angst* can be minimised." Indeed, the very idea behind this book is an attempt to answer this question.

As has already been discussed, the question of how effective games are in promoting language learning cannot be answered directly because of a lack of research in this area. Actually, Palmer and Rodgers review three studies which have compared game-playing methods with more conventional ones. The two studies by Palmer (1976, 1981) — one of the authors — of first-year Thai university students of English are perhaps the more revealing ones. Basically, he found no difference in cognitive learning between the group taught by traditional methods and the one taught by a game-playing approach. However, he found that the group taught by the game-playing method had more fun and apparently acquired more teaching points unconsciously. The results of these two studies show "few differences in cognitive (conscious) learning but significant differences in affect" (Palmer and Rodgers 1983:17). A study by Heinberg (1973) investigated two-person games and found that all students involved in the program were able to pass a language interview for admission to the University of Hawaii.

As Palmer and Rodgers (1983:18) themselves observe, these studies support "educational game research elsewhere in showing that games are at least as learning-effective as alternative instructional strategies and in addition generally promote more positive attitudes towards learning than do those alternative strategies against which games have been compared." Thus, while raising some valid questions about the use of games in language education, the authors nevertheless reach the same conclusion of many classroom teachers. Future research into the classroom uses of puzzles and games will have to examine the questions raised by Palmer and Rodgers more closely and critically.

What Kinds of Puzzles and Games?

Since the judicious use of puzzles and games appears to be a desirable strategy in language education, the question of *why* changes logically to *what* kinds are appropriate and *how* to design them. Actually,

there exists a surprisingly large literature on the pedagogical uses of puzzles and games in second language methodology. A number of books have been written to provide teachers with a wealth of ideas for incorporating such activities into classroom routines; for example, Lee (1965), Crawshaw (1972), Hupb (1974), Schmidt (1977), Schloss (1977), Caré and Debyser (1978), Omaggio (1978), and Wright, Betteridge, and Backby (1979). And many articles can be found scattered throughout the literature which focus on specific aspects of puzzles and games; for example, Bressan (1970), Wolfe (1972), Mollica (1979, 1981), Danesi (1979, 1980), Hendrickson (1980, 1983), Omaggio (1982), and Ervin (1982), to mention but a few.

My purpose in the following chapters is certainly not to add to this vast literature. My aim is to characterize puzzles and games in terms of three general instructional objectives: knowledge of specifics, knowledge of entire messages, and development of communication skills. I will refer to the puzzles in the first category as *discrete-point*, to those in the second as *global*, and to the games in the third category as *interactional*. This terminology (see, for example, Brown 1980:217-19) is adopted to reflect the kinds of instructional objectives to which an activity is directed.

I will describe only those activities that I have found from my own classroom experience — as well as from discussions with other teachers — to be particularly effective as instructional and motivational devices. My aim is to give teachers an overview on how puzzles and games can be designed with a specific pedagogical goal in mind. The selected activities only constitute suggestions. I especially hope that the discussion will be welcomed by those teachers who wanted to know more about puzzles and games but didn't know whom to ask.

Most of the activities have been tested at all levels of education, from elementary school to university. High school and university students are capable of doing all the activities described. Elementary school children have been found capable of handling most discrete-point puzzles, cast in a reduced and simplified form. Very young children cannot handle global puzzle types, such as logic problems, for the simple reason that they have not reached the necessary level of cognitive maturity to carry out the operations required to solve such problems. The teacher alone will have to decide what structure and contents a problem-solving activity will have in line with the age and capabilities of the students.

2

Discrete-Point Puzzles

People have been playing with words since the time of the ancient Greeks.
(Eckler 1979:1)

The category of puzzles that focusses on the knowledge of language forms or specifics can be designated *discrete-point*. Predictably, there is an abundance of commercially available discrete-point puzzles. But these are hardly ever keyed to a particular curriculum. Thus teachers find that it is better to design their own discrete-point puzzles to fit the specific learning tasks that come up in their own classroom situations. Discrete-point puzzles are popular with both teachers and students because they cast the practice of vocabulary and isolated grammatical features into a challenging and recreational problem-solving form. They are, in other words, exercises disguised as puzzles.

In this chapter, I will discuss the following discrete-point puzzle genres: scrambled letters and words, crosswords, word-searches, word tic-tac-toe, word mazes, match-ups, cryptograms, associations, word-wheels, and miscellaneous visual puzzle types. These have been reported in the literature to be very popular and effective learning devices with students of all ages and at all levels of linguistic competence. The discussion of construction techniques and instructional objectives should be considered to constitute only a starting point. The teacher will, of course, discover more uses for, and ways of constructing, the puzzles. Students from the junior level on can also be encouraged to write their own puzzles based on some vocabulary or grammatical theme for class distribution. In this way, they will be involved directly in the preparation of course materials. Any one interested in detailed descriptions of such puzzles can consult the following general works: Borgman (1965), Dudeney (1968), Crescimbeni (1969), Bergerson (1973),

and Eckler (1979). A good account of the history of these puzzles can be found in Hovanec (1978).

Scrambled Letters and Words

By unscrambling the following letters you will get the days of the week.

tSaruyda _____
yadnMo _____
dFirya _____
dSnuay _____
Tdhauysr _____
nWeddesya _____
yadseuT _____

(*ans.* Saturday, Monday, Friday, Sunday, Thursday, Wednesday, Tuesday)

1. Construction Techniques

This puzzle is a simple example of scrambled letters. This type can be constructed at two levels of difficulty. For children and beginning students of all ages, "syllabic" scrambling, that is, scrambling the syllables of a word, seems to be the most appropriate construction technique:

er / wait _____ (*ans.* waiter)
you / thank _____ (*ans.* thank you)
be / may _____ (*ans.* maybe)

In general, however, scrambled letters are formed by a random scrambling technique:

dreba _____ (*ans.* bread)
enrev _____ (*ans.* never)
dreifn _____ (*ans.* friend)

The construction method can be modified in various ways to make these puzzles even more challenging and interesting. Crescimbeni (1969:3) suggests the following type: By adding one letter to a word the letters may then be moved about to make a new word:

one + s = _____ (*ans.* nose)
day + r = _____ (*ans.* yard)
tin + p = _____ (*ans.* pint)

Scrambled letters can also be constructed for playing what Arnold and Lee (1974) called *jumble* — a very popular puzzle that is included in many daily newspapers:

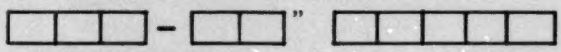
Unscramble these four jumbles, one letter to each square, to form ordinary words. Then arrange the circled letters to form the surprise answer to : What to milk cows by.

cenud = (*ans.* dunce)

snowo = (*ans.* swoon)

funmif = (*ans.* muffin)

terrom = (*ans.* tremor)

Answer: "  "

("moo-ed" music)

The scrambling of words, rather than letters, is another widely used construction technique:

hard / girls / are / Those / studying / very

(*ans.* Those girls are study very hard.)

To solve this puzzle the learner must be able to control word arrangement and relate it to some meaning.

2. Instructional Objectives

Scrambled letters are useful primarily for the recognition of words and their spelling. As mentioned in the previous chapter, it is not clear how helpful these are for introducing vocabulary or for teaching spelling patterns. However, rather than as devices to learn from, they might be useful for vocabulary recall and spelling practice after initial learning has taken place. Scrambled letters can be contextualized in several ways to expand their pedagogical scope. By keying them to some semantic category, they can be used for the review and reinforcement of that category. For example, the puzzle that started off this section can be utilized to review the days of the week. Mollica, Stefoff, and Mollica (1973: 27-28) provide an example of scrambled letters based on antonyms in French:

En mettant les lettres dans le bon ordre, trouvez six mots contraires à ceux de la colonne de gauche. (N'oubliez pas d'ajouter les accents!)

1. succès	1. cheec (*ans.* échec)
2. refuser	2. ecraptec (*ans.* accepter)
3. fort	3. ifleba (*ans.* faible)
4. pas connu	4. elerbec (*ans.* célèbre)
5. nue	5. tuvee (*ans.* vêtue)
6. aimer	6. trestede (*ans.* détester)

Scrambled letters can be designed with some grammatical objective in mind:

By unscrambling the following letters you will get the past participle of each French verb:

naître: en _____ (*ans.* né)

être: tee _____ (*ans.* été)

faire: iatf _____ (*ans.* fait)

Similar puzzles can be constructed to practice the formation of other tenses, the plural formation of nouns, and so on.

Scrambled words have an obvious syntactic objective. These can be contextualized in various ways as well. For instance, they can be used as answers to questions, as this Italian example shows:

Chi legge il libro?

lo / ragazzo / legge / Quel

_____ _____. (*ans.* Quel ragazzo lo legge.)

Quale lingua impari?

italiano / Imparo / l'

_____.(*ans.* Imparo l'italiano.)

This puzzle type can be used for translation practice by simply scrambling up the translation equivalent in the target language:

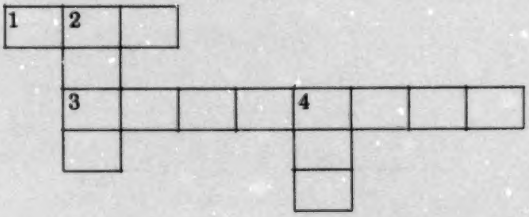
She works in an office.

un / travaille / Elle / bureau / dans

_____. (*ans.* Elle travaille dans un bureau.)

Clearly, then, scrambled letters and words can be easily constructed for a wide variety of discrete-point purposes. They are both entertaining and effective as recall and reinforcement learning devices.

Crosswords



Across

1. The number before *two*.
3. *Ten* plus *nine*.

Down

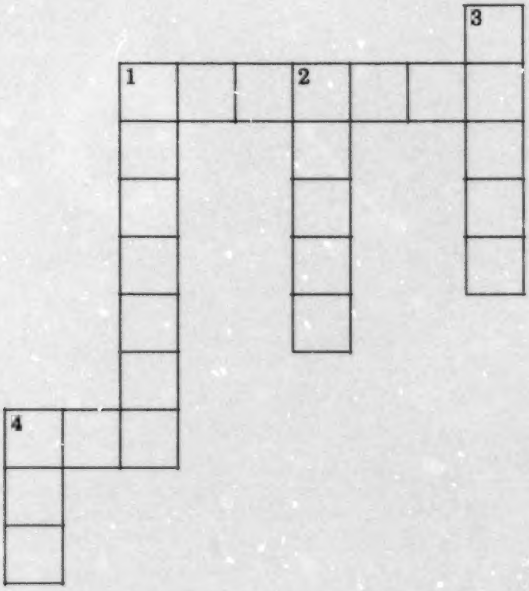
2. The number after *eight*.
4. Twice *five*.

1. Construction Techniques

Crosswords appeal to people of all ages and have probably the largest following of any puzzle in history. The construction technique consists simply in arranging the words so that they cross at appropriate points. This arrangement is then made to correspond to horizontal and vertical clues. For example, one possible arrangement of the Spanish kinship nouns *madre, padre, hermana, hermano, tía, tío* is the following one:

												p	
			h	e	r	m	a	n	a			a	
			e			a			d			d	
			r			d			r			r	
			m			r			e			e	
			a			e							
			n										
t	í		o										
í													
a													

Replacing the letters with boxes, adding clues, and putting numbers in the boxes to correspond to the clues will produce a crossword puzzle contextualized to the theme of "family members":

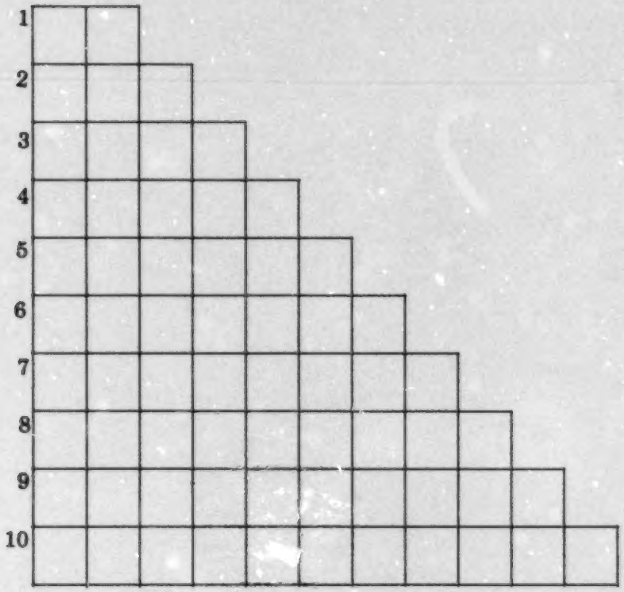


Across:
1. Brother
2. Uncle

Down:
1. Sister
2. Mother
3. Father
4. Aunt

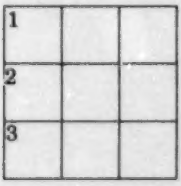
Crosswords can also be constructed in various other ways to make them even more interesting and diversified. Melnyk (1980a) gives an example of a crossword based on a vertical arrangement:

> Tous ces mots finissent par "ON".
> Trouvez les.



1. ON
2. Le contraire de mauvais. (*ans.* bon)
3. Le roi des animaux. (*ans.* lion)
4. Une pièce de la maison. (*ans.* salon)
5. On y trouve le salon. (*ans.* maison)
6. Animal vivant dans l'eau. (*ans.* poisson)
7. Le professeur la pose, l'élève y répond. (*ans.* question)
8. Prenez garde. (*ans.* attention)
9. J'aime regarder les programmes de . . . . . (*ans.* télévision)
10. Epreuve sportive. (*ans.* compétition)

Crosswords can also be arranged in the form of a "magic square" so that each word can be read both horizontally and vertically, as the following puzzle illustrates:

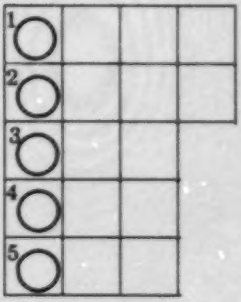


1. A color.
2. You hear with it.
3. The opposite of *wet.*

1 r	e	d
2 e	a	r
3 d	r	y

The arrangement can also be designed so that a vertical column will produce a "hidden" word. This is known as an acrostic puzzle:

The circled column contains the name of a famous English Writer:

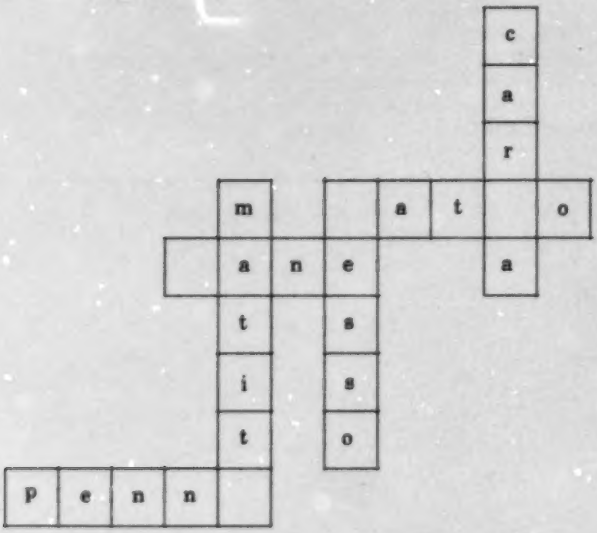


1. Opposite of *odd*.
2. Opposite of *hate*.
3. Opposite of *healthy*.
4. Opposite of *young*.
5. Opposite of *bottom*.

1 E	v	e	n
2 l	o	v	e
3 i	l	l	
4 o	l	d	
5 t	o	p	

With young children who are still coping with learning how to read and write, I have found the following variation to be quite effective as a learning activity in heritage language programs (Danesi 1983).

Find the following Italian words by putting the missing letters in the empty boxes:
cane, gatto, matita, penna, carta, gesso



2. Instructional Objectives

This puzzle activity can obviously be based on a wide variety of discrete-point objectives by using suitable clues. It can be employed, for instance, as an exercise in grammar by providing such clues as "third person singular of *être*," "plural of livre," and so on. It can be used as well as a translation exercise by providing clues in the native language of the student, as exemplified by the Spanish "kinship" crossword above. As an exercise in vocabulary training it has, of course, many pedagogical functions; for example, the clues given can be synonyms, homonyms, antonyms, and so on. If cultural clues are given, then crosswords take on an even wider scope. The point to be made here is that this puzzle type can be utilized for a wide spectrum of discrete-point objectives by simply providing clues based on a specific theme. As Latorre and Baeza (1975:51) put it, "the clues are central to the drilling objective of the crossword." Needless to say, the teacher should always make sure that the level of difficulty of the puzzle is aligned to the age and level of linguistic competence of the learners. Like scrambled letters and words, crosswords appear to be most useful as a recall and reinforcement activity.

Word-Searches

Find the following words in the puzzle: *write, read, speak, go come, stay, walk*

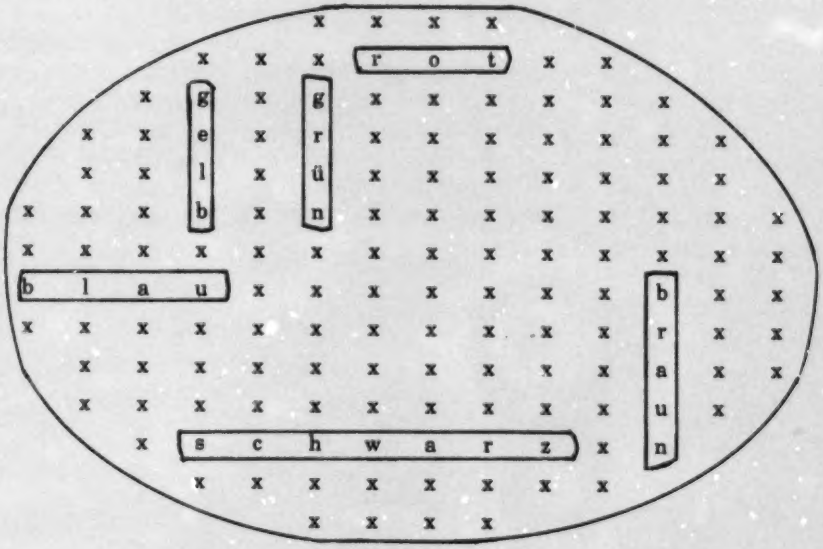
w	i	n	r	e	a	d	r	l
r	e	a	t	b	c	o	l	m
i	w	s	p	e	a	k	g	g
t	a	b	i	t	r	m	n	o
e	l	t	u	c	o	m	e	x
c	k	r	e	d	e	r	e	a
s	t	r	s	t	a	y	m	o

1. Construction Techniques

This puzzle type is constructed simply by hiding words in an array that can take on any geometrical shape. The one above is an example of a "rectangular" word-search. The difficulty of this puzzle can be increased by making the camouflaged words go in various directions: left to right, right to left, up and down, diagonally in any direc-

tion. The level of difficulty should correspond, of course, to the age of the learner. With young children it is advisable to hide the words in an array of repeating letters (e.g. X's), as the following "elliptic" German word-search illustrates:

Find the following colors in the puzzle: *rot, gelb, grün, blau, schwarz, braun*



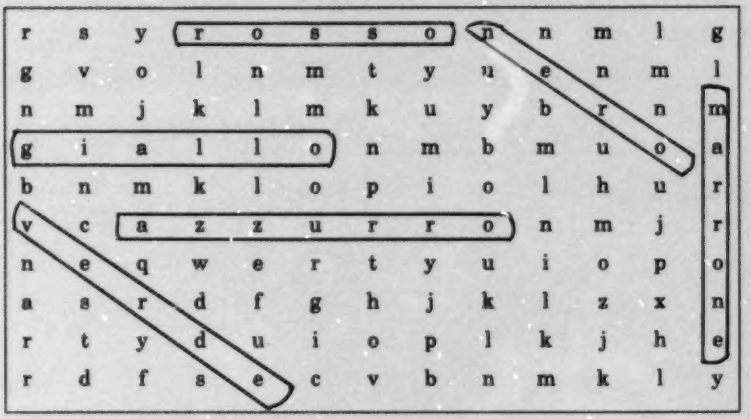
To make word-searches more challenging, they can be combined with other puzzle types such as scrambled letters:

The following letters can be unscrambled to give color adjectives in Italian. These are also hidden in the puzzle.

ssroo iaolgl derve rrmaneo rneo zuzroar

_____ _____ _____ _____ _____ _____

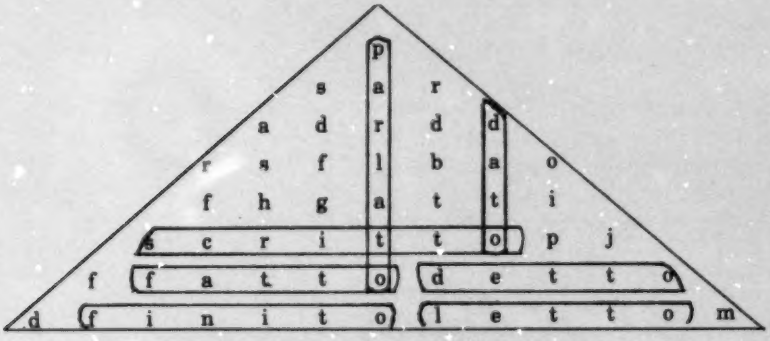
(rosso) (giallo) (verde) (marrone) (nero) (azzurro)


r s y r o s s o n n m l g
g v o l n m t y u e n m l
n m j k l m k u y b r n m
g i a l l o n m b m u o a
b n m k l o p i o l h u r
v c a z z u r r o n m j r
n e q w e r t y u i o p o
a s r d f g h j k l z x n
r t y d u i o p l k j h e
r d f s e c v b n m k l y

2. Instructional Objectives

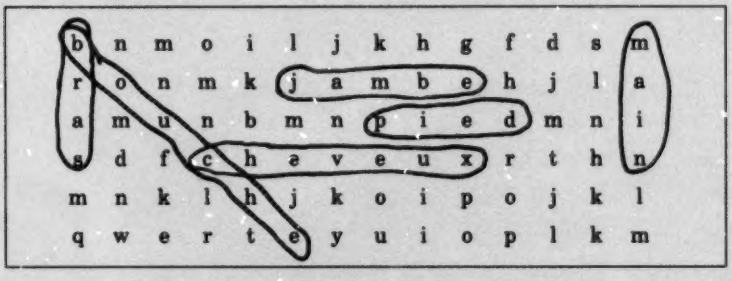
By contextualizing word-searches in various ways, they can be used for a wide variety of discrete-point objectives. For example, a grammatical activity can be designed to produce the following "triangular" Italian word-search:

Find the past participles of the following verbs: *parlare, scrivere, dire, dare, fare, leggere, finire*



An example of a word-search keyed to a vocabulary theme is the following French one:

There are six words referring to the human body hidden in the puzzle. Can you find them?



It should be noted that word-searches are suitable for learners of all ages. Like the puzzles already discussed, they have a recall and reinforcement function.

Word Tic-Tac-Toe

Find three words in a line (across, down, diagonally) which have something in common: similar meanings, the same first letter, the same grammatical function, and so on.

boy	cat	rock
dogs	trees	houses → (*ans.* three plural nouns)
pen	man	chair

1. Construction Techniques

This is an easily constructed word version of the well-known game "tic-tac-toe." The idea is simply to put three or more words which share some feature in a line. For example, the words *week, look,* and *seem* have [illegible]e vowels. Arranging them diagonally and adding randomly selected words produces the following puzzle:

week	day	easy
table	look	like
after	buy	seem

31

2. Instructional Objectives

This puzzle type has been suggested by Melnyk (1980b) as a device for focussing the learner's attention on pattern within the target language. The following three examples (one in Spanish, one in French, and one in German) illustrate how this puzzle genre can be used to focus attention on various discrete-point features:

yo	tuyo	hable
ella	rojo	pan
nosotros	lápiz	para

(*ans.* three subject pronouns)

yeux	plume	faire
livre	hommes	pomme
parler	rouge	filles

(*ans.* three plural nouns)

Apfel	Brine	Pfirsich
Blume	Land	Baum
Hand	Kopf	Buch

(*ans.* three fruits)

This puzzle type is, clearly, a challenging review and reinforcement activity which forces the learner to think "intralinguistically," that is, totally in terms of the orthographical, grammatical, and semantic patterns of the target language.

Word Mazes

To find your way out of the maze, follow three words which mean the same thing.

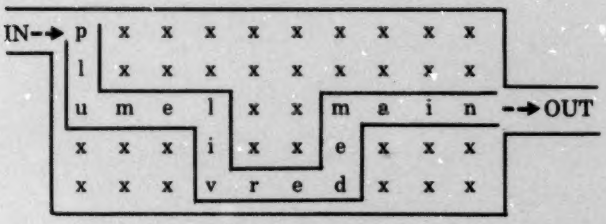
IN →	s	p	e	a	k	t	u	i	t	y	h	o
	i	u	y	u	i	a	y	u	k	l	p	o
	q	w	e	r	t	l	y	u	i	o	p	o
	g	h	j	k	l	k	i	u	y	t	r	e
	z	s	d	t	f	e	x	p	r	e	s	s → OUT

(*ans.* speak — talk — express)

1. Construction Techniques

As in the case of word-searches, words or messages can be hidden in a maze structure for various pedagogical reasons. Mazes can be simplified for children by filling in the background with repeating letters (for example, X's):

To find your way out of the maze, you must follow three French words:

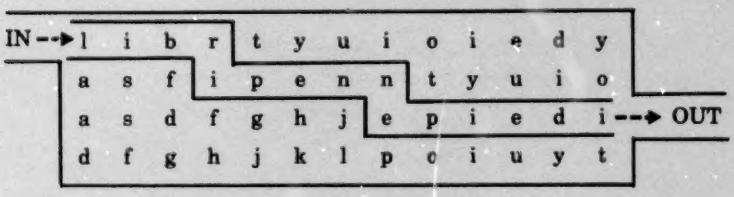


(*ans.* plume — livre — demain)

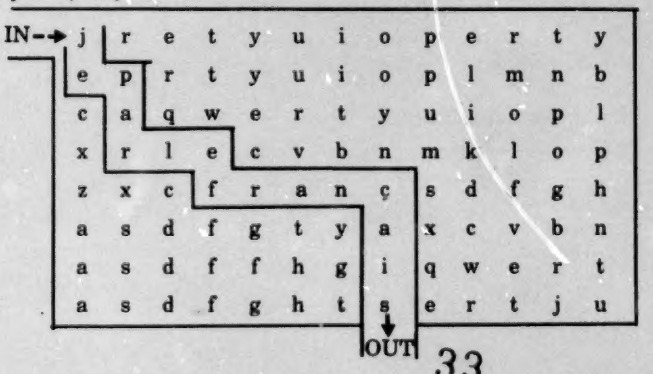
2. Instructional Objectives

Like other puzzle types, the clues provided can be based on any orthographical, grammatical, or semantic theme. Two examples will suffice to illustrate how mazes can be keyed to specific discrete-point objectives:

To find your way out of the maze, follow the plurals of the Italian nouns *libro, penna,* and *piede:*



To find your way out of the maze, follow the answer to the question *Qui parle français?*


IN→ j r e t y u i o p e r t y
e p r t y u i o p l m n b
c a q w e r t y u i o p l
x r l e c v b n m k l o p
z x c f r a n ç s d f g h
a s d f g t y a x c v b n
a s d f f h g i q w e r t
a s d f g h t s e r t j u
OUT

In essence, then, word mazes can be added to the list of puzzles which can be constructed to fit a wide range of discrete-point objectives.

Match-Ups

Match up each pronoun with its verb form:

1. I	a. are
2. he	b. am
3. we	c. is
4. you	d. is
5. she	e. are
6. they	f. are

(*ans.* 1-b, 2-c, etc.)

1. Construction Techniques

As the above example clearly shows, this puzzle type is constructed simply by putting items into two columns. The items in the left column are usually distinguished by numbers, and the items in the right column by letters.

2. Instructional Objectives

As in the case of the previously described puzzles, the match-up activity can be planned to suit a wide assortment for discrete-point learn ing objectives. The next three puzzles can be used to exemplify the following objectives: adjective agreement in Spanish, sentence structure in French, and word meaning in Italian:

Match up each noun with each adjective in an appropriate fashion:

1. libro	a. rojas
2. libros	b. amarillo
3. pluma	c. rojos
4. plumas	d. blanco
5. cuaderno	e. roja

(*ans.* 1-b, 2-c 3-e, 4-a, 5-d)

Match up the two columns to get logical sentences:

1. Le garçon	a. pas le stylo de l'étudiant?
2. Ils ont les	b. n'est-ce pas?
3. N'ont ils	c. livres du professeur
4. Vous avez la craie,	d. ne parle pas français
5. Il y a assez	e. de livres ici

(*ans.* 1-d, 2-c, 3-a, 4-b, 5-e)

Match up each word with its meaning:

1. zio	a. la sorella del marito
2. sorella	b. il fratello della madre
3. nonno	c. il figlio dello zio
4. cugino	d. la figlia dei miei genitori
5. cognata	e. il padre del padre

(*ans.* 1-b, 2-d, 3-e, 4-c, 5-a)

Cryptograms

By substituting one letter for each number you will form a greeting:

H _ _ _ _ o, _ _ _ _ _ a _ _ _ _ _

1 2 3 3 4 1 4 5 6 7 2

y _ _ _ ?

(*ans.* Hello, how are you?)

1. Construction Techniques

This is an interesting and challenging problem-solving activity that might be suited primarily for advanced learners. The construction method consists in replacing letters with numbers. The learner must reconstruct the original word or message on the basis of a few clues. Cryptograms can be made more interesting by combining them with other puzzle genres:

Unscramble the following Italian words which refer to the "house":

tropa _ _ _ _ (*ans.* porta)

1 2 3 4

35

ccuian _ _ _ _ _ _ (*ans.* cucina)
6 7 6 8 9 5

altosto _ _ _ _ _ _ _ (*ans.* salotto)
10 5 11 2 4 4 2

ameacr _ _ _ _ _ _ (*ans.* camera)
6 5 12 13 3 5

ettto _ _ _ _ _ (*ans.* tetto)
4 13 4 4 2

2. Instructional Objectives

This type of activity focusses on the ability to recognize word-formation patterns and on the ability to relate forms syntactically. Like tic-tac-toe, it forces the learner to think in terms of the orthographical, grammatical, and semantic patterns of the target language. As such, it is useful mainly as an overall review exercise. Nevertheless, the words or messages to be reconstructed can be designed with some specific discrete-point objective in mind; for example, the cryptogram itself can be a definition of a given word, the translation of a given native language message, the name of some target culture personage, and so on. The following two French examples will suffice to illustrate the possible discrete-point uses of cryptograms:

The hidden message translates *Love is a great illusion:*

_ _ _ _ _ _ _ _ _ _ _ _
m u
1 2 3 4 5 6 7 8 9 5 10 7

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
11 6 2 10 12 7 13 1 1 5 8 13 4 10

(*ans.* L'amour est une grande illusion)

The hidden message is an answer to the question *À quoi pensez-vous?*

_ _ _ _ _ _ _ _ _
j n
1 2 3 2 4 2 3 5 2

_ _ _ _ _ .
6 7 8 2 3

(*ans.* Je ne pense à rien.)

Associations

Choose a word that is related logically to the word before it and to the one after it:

clock _____ bug

(*poss. ans.* tick)

1. Construction Techniques

The object of this puzzle is to fill in the spaces between words so that each word is related logically to the word immediately preceding it and to the one immediately following it:

folk _____ _____ _____ mattress

(*poss. ans.* folk — music — box — spring — mattress)

The basic construction technique is obvious. A variation is to change one letter at a time to produce new words on each change:

Change *dog* to *pet* by changing just one letter at a time, producing a new word each time:

dog _____ _____ pet

(*poss. ans.* dog — dot — pot — pet)

2. Instructional Objectives

This is a difficult lexical activity that forces the learner to identify ideas in the target language and relate them sequentially. The difficulty of this puzzle type probably limits its use to advanced learners. It clearly enlarges the scope of the learner's associative powers in the target language. Associations can be made easier if designed with some grammatical objective in mind. The following Italian example will suffice to show how associations can be keyed to grammatical sequences:

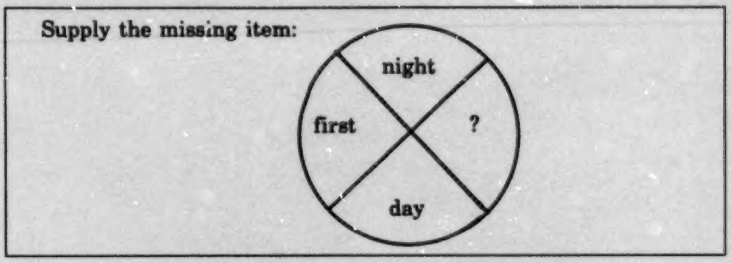
parlo _____ parla (*ans.* parli)

_____ parlavi parlava (*ans.* parlavo)

parlerò parlerai _____ (ans. parlerà)

(Each sequence consists of the first three persons of a verb conjugation.)

Word-Wheels



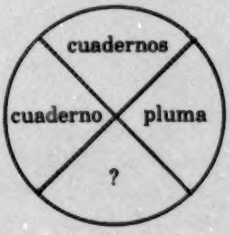
(*ans.* last. Words opposite each other are antonyms.)

1. Construction Techniques

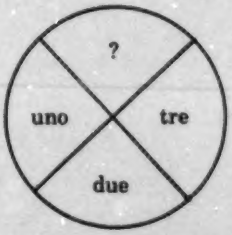
The object of this puzzle is to add a word in the empty segment of a wheel on the basis of some relation present among the other words. The construction technique consists simply in putting three items in a circle, two of which are related in some way. The example above shows items opposite each other to be in an antonymic relationship. The relationship can be also clockwise or counter-clockwise.

2. Instructional Objectives

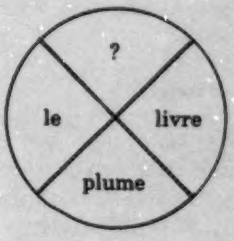
Like associations, cryptograms, and word tic-tac-toe, this puzzle type focusses the student's attention entirely on structural and semantic relations within the target language. Word-wheels can be used for a wide variety of discrete-point objectives, as the following three puzzles (one in Spanish, one in Italian, and one in French) show:



(*ans.* plumas. The relation is a singular noun followed by its plural form in a clockwise fashion.)



(*ans.* quattro. The first four numbers occur in a counter-clockwise fashion.)



(*ans.* la. Items opposite each other are the definite article plus a noun.)

Visual Puzzles

It is used on bread. What is it?

- fly = _____

(*ans.* butterfly – fly = butter)

1. Construction Techniques

Puzzles with a discrete-point focus that utilize some visual stimulus seem to be very popular, as Mollica (1981) reports. Of the many kinds and variations possible, four general types can be identified: rebuses, eye-twisters, odd-one-out, and dot-to-dot puzzles.

Rebuses are essentially visual cryptograms. To construct a rebus, simply replace a letter, sound, or word with a visual symbol. To add or subtract letters use the normal arithmetical signs for these operations:

Clue: A sport

+ ase + = _____ (*ans.* baseball)

Clue: You write with it.

- cil = _____ (*ans.* pen)

Sentence rebuses can also be constructed in a similar fashion:

8 a = (*ans.* I ate a banana.)

Eye-twisters are also very popular puzzles that can be used with students of all ages. The object is to find a number of differences between two pictures and then write them down:

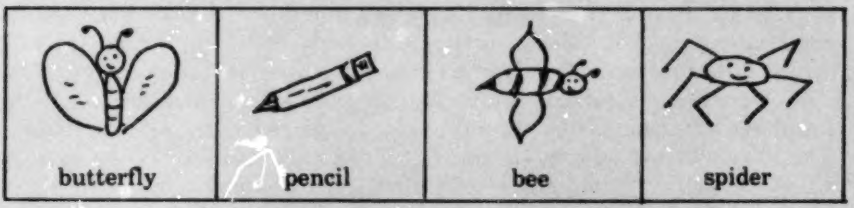
Can you find at least 8 differences in the 2 pictures?

(from Yalden 1981:24)

Eye-twisters can be drawn or taken from magazine and puzzle books and adapted for classroom use.

The idea behind the odd-one-out puzzle is to put together a number of items, one of which does not belong to the collection. The student is then asked to write down the incongruous item.

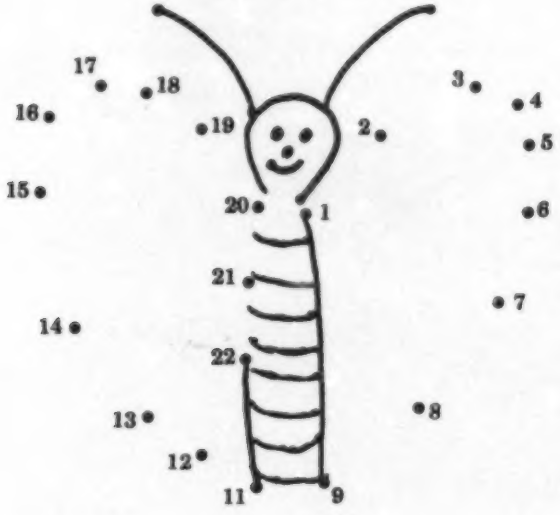
Which item does not belong?



The obvious answer to this puzzle is the pencil — all the others are insects. This puzzle can be drawn or pieced together from cut-outs. It is applicable to all age groups.

The dot-to-dot puzzle is useful primarily with children. The construction principle is very simple. Replace the outline of some figure with numbers which the learner must retrace in numerical sequence. The result is the original figure reconstructed. The learner is then asked to write down the word for the figure in the target language. Dot-to-dot puzzles can also be taken from puzzle magazines and adapted for classroom use as the following example shows:
(1969:155):

What is it?



(*ans.* a butterfly)

2. Instructional Objectives

Visual puzzles are useful, clearly, for the recall and reinforcement of vocabulary. The pedagogical scope of the odd-one-out puzzle can be expanded by asking the student to write down the reason why one of the items does not belong in the collection.

It should be emphasized, as a final word on discrete-point puzzles, that such devices constitute only one possible kind of practice and reinforcement method. They should be used together with other methods. The idea is to add variety to those often boring classroom routines aimed at developing the control of structure and vocabulary.

3

Global Puzzles

A good puzzle, like virtue, is its own reward.
Dudeney (1958:13)

The puzzles which aim to promote overall knowledge of the target language have been designated *global*. These activities can be used to develop the learner's overall competence and functional proficiency after initial learning has occurred. As in the case of discrete-point puzzles, these activities must be made to reflect the age and intellectual abilities of the learners. The teacher should monitor learner reaction to each puzzle type carefully, so as to select only those puzzles that a specific group of learners will enjoy doing.

Unlike discrete-point puzzles, very few educators and textbook writers have attempted to adapt global puzzles to second-language methodology. Perhaps this reveals that the bias of second-language methodology has been, until recently, in favour of discrete-point goals. In a previous study (Danesi 1979), I attempted to show that global puzzles are versatile devices, since they are useful not only as exercises in global comprehension, but also as activities from which discrete-point and interactional objectives can be derived. While their focus is, of course, on information content, they can be constructed to highlight some discrete-point theme, as will be discussed in this chapter. Since global puzzles can be written in narrative or dialogue form, they can also serve as exercises in style; for example, students can be asked to simplify a puzzle by paraphrasing the information in point form, to rephrase the puzzle in a different form (narrative or dialogue), and so on. Interested students can be encouraged to compose their own puzzles. This will not only involve them directly in the preparation of materials, but also serve as an exercise in composition. Finally, since solutions will be discussed in class, global puzzles offer a good opportunity for verbal interaction in the target language. I have

found that tricky problems always seem to stimulate much interest and discussion.

Many global puzzles can be easily composed by imitating certain general types. Familiarity with each puzzle genre makes it progressively easier to design variations. These puzzles can be compiled as well from magazines or puzzle books and adapted or translated into the target language. In this chapter I will describe four broad categories of global puzzles: riddles, word tricks, logic problems, and mathematical puzzles. This is only an elementary typology to which teachers can add as they see fit. A few of the examples used have been adapted from Adams (1957), Wylie (1957), Crescimbeni (1969), and Smullyan (1978).

Riddles

> What becomes larger when turned upside down?
>
> (*ans.* The number 6 becomes 9)

1. Construction Techniques

Riddles are one of the best known and most popular puzzle forms of all time. Children and adults alike seem to derive enjoyment from the unexpected answers to riddles. They hardly need any explanation. Riddles are found in many published sources (magazines, newspapers, riddle books, and so on). However, they can be easily constructed once the principle involved is understood: namely, to disguise the object or concept to be guessed by properties which are generic and, consequently, non-obvious. For example, if the object to be guessed is, say, a penny, then the generic characteristics might be "round," "head," and "tail." These can then be incorporated into a riddle statement such as:

> What is round and has a head and a tail?

2. Instructional Objectives

The following two riddles exemplify how global puzzles work. I have chosen to translate them into Italian for the sake of illustration:

> What goes up and never comes down?
> Che cosa va su senza venire più giù?
> (*ans.* your age / l'età)
>
> The longer it stands, the larger it grows.
> Più sta su e più s'allarga.
> (*ans.* a candle / una candela)

The learner must not only assess what the riddle says, but also at-

tempt to come up with a non-obvious solution after thinking about different possibilities. The learner's attention is, therefore, directed to the puzzle's information content and its "ramifications."

The pedagogical scope of riddles can be amplified by asking the students to follow up their solutions with a series of discrete-point or interactional activities such as listing the pronouns or nouns, conjugating the verbs in the tense and mood in which they appear, writing their own riddles on similar themes, discussing their solutions, and so on.

Word Tricks

> If it takes 3 minutes to boil one egg, how many minutes does it take to boil three eggs?
>
> (*ans.* Still three minutes. Boil all eggs at the same time.)

1. Construction Techniques

These are really trick riddles. They set out deliberately to deceive the problem solver. Like riddles, word tricks seem to be popular with learners of all ages. It appears that no one wants to be outwitted.

There is no set way to construct word tricks. A "problem-solving" framework can often be used as a starting point. For instance, write a simple arithmetical problem:

> How much dirt is required to fill a *box* with the dimensions 2 in. × 3 in. × 5 in.?

The answer is, of course, 30 cubic inches. This simple problem can be turned into a word trick by changing the word *box* to *hole*. Then the answer is that a *hole* cannot contain any dirt. A few more examples will illustrate how this puzzle genre works:

> There are 12 one-cent stamps in a dozen, but how many two-cent stamps are there in a dozen?
> (*ans.* A dozen is a dozen.)
>
> If you take three apples from five apples, how many do you have?
> (*ans.* The three that you took.)
>
> Elizabeth stands with both feet on a scale and weighs 60 pounds. How much does she weigh when she lifts one foot?
> (*ans.* The same.)
>
> Jones has a very intelligent daughter. But Jones is not the father. How is this possible?
> (*ans.* (Mrs.) Jones is the mother.)

2. Instructional Objectives

The puzzles above can be translated easily into any language. They

require the learner to focus on information content, and specifically on finding the trap. One obvious follow-up activity is to ask the students to explain in the target language what the trick is in a puzzle, thus promoting communication and language use. Students can also be encouraged to write their own puzzles or to translate them from English. Among a number of discrete-point activities that can be derived from word tricks, one can mention the following: rewriting a puzzle in a different tense, replacing the nouns in a puzzle with alternative ones, and so on.

Logic Problems

> John is younger than Mike, who is older than Bill, who is older than John. Who is the oldest?
>
> (*ans.* Mike)

1. Construction Techniques

This is a broad category which includes any puzzle that calls for deductive reasoning with no play on words or deliberately deceptive statements. In order to understand the construction principles underlying many logic puzzles, it is instructive to analyse the solution of a typical logic problem (Mollica 1976:26):

> MM. Martin, Blanchet et Le Blanc travaillent dans le même édifice. Ils sont banquier, avocat et bijoutier mais pas nécessairement dans cet ordre. Le bijoutier qui est l'ami de M. Blanchet est le plus jeune des trois. M. Le Blanc est plus âgé que l'avocat. Essayez de deviner leur métier ou profession.

To keep track of the possibilities an array can be set up. If we conclude that something is to be eliminated, then we place an X in the appropriate cell; if we conclude the opposite, then we put an O in the cell. The array for the above puzzle is:

	banquier	avocat	bijoutier
Martin			
Blanchet			
Le Blanc			

The third sentence leads us to conclude that M. Blanchet is not the

jeweler. We can, therefore, put an X in the appropriate cell in the array to eliminate this possibility for M. Blanchet:

	banquier	avocat	bijoutier
Martin			
Blanchet			X
Le Blanc			

The fourth sentence allows us to conclude that M. Le Blanc is not the lawyer:

	banquier	avocat	bijoutier
Martin			
Blanchet			X
Le Blanc		X	

Sentences three and four also allow us to deduce that M. Le Blanc is not the jeweler. This is because the jeweler is the youngest of the three, while M. Le Blanc is at least older than the lawyer:

	banquier	avocat	bijoutier
Martin			
Blanchet			X
Le Blanc		X	X

A look at the array now makes it clear that Le Blanc is the banker. We note this by putting an O in the appropriate cell and eliminating the banker possibility for the other two:

	banquier	avocat	bijoutier
Martin	X		
Blanchet	X		X
Le Blanc	O	X	X

We now see that Blanchet is the lawyer and Martin the jeweler:

	banquier	avocat	bijoutier
Martin	X	X	O
Blanchet	X	O	X
Le Blanc	O	X	X

Many collections of puzzles similar to this one can be obtained commercially (for example, Wylie 1957, Phillips 1961, Summers 1972, Maley and Grellet 1981, to mention but a few). However, logical problems can be made up by the teacher once the underlying construction principle is understood. The idea is to reverse the above procedure. Simply set up an array pairing two sets of variables: for example, names of people vs. sports, professions, and the like. Then, statements precluding certain pairings are made so as to leave one, and only one, pairing in each column and row. This unique pairing corresponds, of course, to the O cell in the array. With a little practice, appropriate statements can be made to preclude pairings between variables. The above problem is a nine-cell array consisting of three pairings. As familiarity with such puzzles increases, the teacher will be able to construct puzzles of four and five pairings. As always the level of difficulty of such puzzles must be made to correspond to the age and intellectual abilities of the learners. Logic problems may not be suitable for young children. On the other hand, they always seem to pose an intriguing challenge to older students.

A second general type of logic puzzle may be called a "truth" problem. This is also quite popular with older students.

> Four men, one of whom was known to have committed a certain crime, made the following statements when questioned by the police:

Archie: Dave did it.
Dave: Tony did it.
Gus: I didn't do it.
Tony: Dave lied when he said I did it.

If only *one* of these statements is true, who was the guilty man?

The solution to this problem hinges on the fact that either Dave or Tony lied, but not both. Thus, we immediately know that the other two statements are false, because there is only one true statement. Therefore, from Gus's statement — which is false — we conclude that he must be the guilty one.

Many puzzles of this type can be easily constructed. All are based on conditions similar to the ones in the above puzzle: a series of statements are made, one of which is true and the rest false (or vice versa). Only one of the statements must contain the desired solution. If the statement is true, make sure that it contains a true assertion; if it is false, just make it assert the opposite. The other statements must not contradict the desired solution.

A third popular type of logic problem involves intricate kinship relationships which the learner must try to disentangle. To construct problems of this type follow a procedure similar to the following one. We know that the grandmother of a child is the mother of the child's father or mother. Assume it is the mother. Then, we can state in Italian, for instance, that the grandmother is also the *suocera* ("mother-in-law") of the father (*padre*). The grandmother is also the mother's mother (*la madre della madre*). This allows us to construct a problem such as:

"La madre di tua madre è mia suocera," ha detto un uomo ad un bambino.
Chi sono?

(*ans.* padre e figlio)

2. Instructional Objectives

Logic problems clearly involve the learner in a global comprehension task. By going through the solution strategies discussed above, the learner makes use of the target language in ways that would not be possible with mechanical discrete-point drills. The learner's attention is focussed on information content and on how to wrest a solution from it.

Follow-up activities of a discrete-point and interactional nature can also accompany logic problems. For example, the problems based on professions and kinship relations discussed above can be used to reinforce vocabulary. Solutions can also be discussed orally in class, thus adding an interactional dimension to these puzzles.

Mathematical Puzzles

> Mrs. Smith had a pair of twins twice. How many children is that?
>
> (*ans.* A pair of twins is 4 children; and since Mrs. Smith had them twice, she had 8 children in all.)

1. Construction Techniques

These puzzles involve an elementary knowledge of arithmetic or algebra, and must therefore be made to reflect the learner's mathematical abilities. Many of these puzzles can be taken directly from mathematics textbooks and translated into the target language. The teacher should always monitor which ones are enjoyed and which ones are not. Two more examples will suffice to illustrate this puzzle genre:

> A man starts out from a given point. If for every 2 steps forward he takes 1 step back, how many steps will he have to take in order to reach a point 5 steps ahead of his starting point?
> (*ans.* 11 steps)
>
> If a brick balances evenly with 3/4 of a pound and 3/4 of a brick, what is the weight of the whole brick?
> (*ans.* 3 pounds)

The last puzzle is solved by setting up a simple algebraic equation (x = weight of the whole brick):

Weight of the whole brick	=	3/x lb.	+ 3/4 of the brick
x	=	3/4	+ 3/4 x
x	=	3	

2. Instructional Objectives

Once again, mathematical puzzles involve the learner in a global learning task. These puzzles can, of course, be followed up by the same kinds of discrete-point and interactional activities already mentioned several times in this chapter. It should always be remembered that any puzzle should be used together with other methods of language practice. Given the wide assortment of puzzles available, the teacher will also be able to use different types frequently so as to keep the game-playing method varied and interesting.

4

Interactional Games

With the recent emphasis on the need to foster the development of functional language proficiency in the second-language classroom, there is an ever-increasing demand for new and imaginative teaching materials that can aid directly in the improvement of students' communication skills.

Omaggio (1982:517)

In this book I have limited the definition of a *game* to any type of problem-solving activity that involves more than one learner. The pedagogical focus of games is language use and communication. There exists, of course, a large number of classroom games and simulations which do not involve problem-solving, but are nevertheless devoted to the fostering of communicative interaction. These are, needless to say, very useful and can certainly occupy a slot in a lesson plan that might otherwise be occupied by more monotonous drills and language practice exercises. But the games to be described briefly here require the players to solve some problem.

Before discussing an elementary typology of classroom games, it might be useful to deal, in a general way, with game-playing and communication in the classroom, since in my view these devices offer the teacher an effective means of making the learning of strategic interaction a pleasant task.

Games and Classroom Communication

It goes without saying that perhaps the hardest pedagogical task in any language course is to get the students to use the target language in a coherent and "autonomous" fashion without the direction of the teacher. The current pedagogical literature is, in fact, replete with suggestions on how to promote or improve communicative skills in the classroom. Many advances have, as a result of this emphasis, been ob-

tained in this instructional area. From the kinds of research on games described in the opening chapter, it is becoming more and more obvious that games and simulations can be employed to encourage communication in a meaningful and structured way.

Games involving problem-solving are effective in stimulating autonomous speech in the classroom for at least three reasons:

(1) They tend to create a low-anxiety situation where students feel comfortable with each other and the instructor, and are generally more willing to express themselves freely.
(2) They provide a grammatical and lexical structure or context within which the student can operate comfortably at a specific level of competence. In other words, games are constructed on the basis of specific items of vocabulary and grammar which reflect the student's level of competence.
(3) Like all problem-solving activities, they force the learners to focus on content and meaning and to be sensitive to their communicating partners.

It goes without saying that each interactional game should not only encourage classroom communication, but should also have a specific instructional objective. Wright, Betteridge, and Buckby (1979) and Omaggio (1982), among others, provide a series of useful suggestions on how to integrate classroom communication to specific objectives by means of game-playing.

It is, of course, much harder to design a game with some instructional objective in mind than it is to design a discrete-point puzzle. The purpose of this chapter is to provide a few examples that will serve to illustrate how games can be made to meet instructional objectives and to allow the student to formulate messages autonomously, albeit within a framework determined by the nature of the game itself. The value of interactional games for stimulating autonomous student production rather than teacher-directed demonstration is often pointed out in the literature. To quote Rivers (1983:61): "For any aspect of language structure a game or simulated activity can be invented that forces the students into *autonomous activity* in which they produce responses similar to those in an artificial teacher-directed exercise, but this time of their own volition for their own purposes."

I will classify interactional games in terms of the following simple schema: (1) games based on discrete-point/global puzzles, (2) "well-known" games, and (3) any teacher-made game that involves students in some problem-solving situation.

Games Based on Discrete-Point/Global Puzzles

The puzzles described in the previous two chapters can be transformed into games quite easily. For example, scrambled letters can be played by two or more students — the object of the game being to come up

with the word to be reconstructed first. The same applies to any discrete-point puzzle. By simply expanding the activity to involve two or more students simultaneously, each puzzle genre can become a game. In this way, not only are the orthographical, grammatical, or semantic objectives of the puzzle met, but an interaction component is added that enhances the usefulness of the puzzle. Students of all ages seem to enjoy pitting their wits against one another in the classroom. The small amount of research that exists on game-playing in the language classroom — as discussed in the first chapter — seems to confirm the recreational effect connected with games and the positive attitude they generate towards the target language.

Global puzzles can also be transformed into games. The winner of each game is, of course, the one who comes up with the correct answer to a riddle, word trick, logic problem, or mathematical puzzle first.

To increase interaction among the students, each game can be played by dividing the class into teams. A rule of the game must be that solutions among team members are to be discussed solely in the target language. If this rule is broken, the guilty team is disqualified. The teacher is an appropriate referee in this matter.

Let's look briefly at how to transform some of the puzzles into classroom games. I will describe each one schematically in terms of two categories: rules/procedures involved and instructional objectives/types of communicative skills.

Game: **Guess the Word/Sentence.**

Rules/Procedures: Two teams are given the same scrambled word or sentence by the teacher. The first team that comes up with the word or sentence is declared the winner. A point system can be used as well to prolong the game. The solution alternatives may be discussed among team members in the target language. The words/sentences chosen should reflect some previously learned topic or theme.

Instructional Objectives/Types of Communicative Skills: In addition to the discrete-point objectives connected with scrambled words/sentences (discussed in the second chapter), this game is useful in encouraging students to discuss among themselves various solution strategies and alternatives. The discussion of various hypotheses among team members will clearly require autonomous speech production which will vary, of course, according to the level of competence attained.

Game: **Word-Search Competition.**

Rules/Procedures: Two teams are given the same type of word-search puzzle (see chapter two) and given a time limit (say 5 minutes) to find as many words as possible. Team members may discuss the puzzle among themselves. The team with the greatest number of words identified is the winner. In the event of a tie, a "play-off" game can be played.

Instructional Objectives/Types of Communicative Skills: As in the previous case, the instructional objectives of this game are identical to the corresponding puzzle. In terms of the development of functional proficiency, this game also encourages the students to use the target language in a spontaneous manner during the discussion of the arrangement of the hidden words, and to respond to the guesses and hypotheses of the team members.

Game: **Tic-Tac-Toe**

Rules/Procedures: Two teams are given the same word tic-tac-toe puzzle (see chapter two). The first team to find three words in a line which have something in common wins. Team members can discuss the solution among themselves in the target language.

Instructional Objectives/Types of Communicative Skills: Besides meeting the instructional objectives of the corresponding puzzle, this game is helpful in stimulating interaction among team members as they discuss the relationships among the words (whether or not they are synonyms, antonyms, and so on). The level of the discussion will obviously reflect the level of competence of the students.

Games similar to these can be set up to transform word mazes, match ups and any other discrete-point puzzle into a classroom interactional activity. The basic principle is to give a discrete-point puzzle to two teams so that the team members can negotiate the solution among

themselves in the target language. A similar principle is involved in setting up games based on the global puzzles discussed in chapter three. The following two examples will suffice to illustrate such games.

Game: **Who/What Am I?**

Rules/Procedures: The class is divided into two teams. Each team chooses a leader who will give clues in the target language on a famous personage or on an object (given to the leader on a card by the teacher). Within a certain time limit the team must come up with the name of the personage or object. Within this time period team members can ask the leader questions and can discuss various solutions among themselves. Each team takes turns choosing a leader and guessing the name. The team which reaches a predetermined number of correct guesses first is the winner.

Instructional Objectives/Types of Communicative Skills: This game is obviously related to the riddle genre of global puzzle. The leader might say in the target language: "I am round and I bounce, what am I?" (A ball). Team members can ask the leader a series of questions in order to discover more about the properties of the object or about the characteristics of the personage. Clearly, this game requires the ability to ask the appropriate questions and to formulate answers that will help team members reach a solution.

Game: **Solve-It-First.**

Rules/Procedures: Two teams are given the same word trick, logic problem, or mathematical puzzle (see chapter three). Team members can discuss the solution among themselves. The first team to come up with the answer is declared the winner. A team leader is then selected to discuss the solution with the entire class.

Instructional Objectives/Types of Communicative Skills: In addition to the same kinds of objectives associated

with global puzzles, games of this type encourage the use of the target language — as any game does — to arrive at a solution within a team.

Games based on discrete-point/global puzzles provide students with an opportunity to talk to each other as they attempt to reach a solution. Thus, such games are simultaneously competitive and co-operative: they are competitive in that they involve competition between two teams; they are co-operative because they encourage members of the same team to work together in negotiating a solution.

The question that inevitably comes to mind is what role does the teacher play in interactional games. The teacher is not involved directly in the speech production that emerges from team discussions and should not interrupt the interaction when errors are detected. If so desired, the teacher can make a list of recurrent errors and discuss them in general terms after the game. The teacher should also be available as a language "coach" during the game when a team or individual player needs help in the area of vocabulary or of grammar. And, of course, the teacher is the one who prepares the puzzle to be used in the game with a specific instructional objective in mind.

"Well-Known" Games

As Irwing (1982:726) points out, it "seems wise to top the wide interest in television" that students have and therefore to adapt certain television game and quiz shows to the classroom. Three television shows can be used to illustrate this type of game. In *The Price Is Right* the problem-solving task consists in guessing the price of some item; in *The Family Feud* the problem is to guess the answers most frequently given in a survey; and in *What's My Line?* the idea is to guess a secret identity or occupation.

Game: **The Price Is Right.**

Rules/Procedures: The teacher can cut and mount pictures of products from catalogues and magazines (appliances, clothes, etc.). A full description of the product is read by the teacher or a student in the target language, and the students are asked to guess the price. Three students at the blackboard give their guesses aloud, while the others note theirs. The one at the board closest to the actual price remains there, while the

other two are replaced by two in the "audience" whose estimates were closer. The winner is the one who is left at the board.

Instructional Objectives/Types of Communicative Skills: The obvious objective of this game is to develop listening and comprehension skills (by means of the description of the product), and to practise numbers. Students can also be encouraged to ask questions about the product, thus enlarging the communicative scope of this game.

Game: **The Family Feud.**

Rules/Procedures: The teacher should survey, say, 100 students on a series of general questions (your favorite color, make of car, type of food, and so on). The frequency of each response is then tabulated. The class is divided into two teams. Ten questions are asked by the teacher in the target language and a student delegated by each team must attempt to respond to all questions within a specified time frame (for example, one minute). The answers of the two students must be different. The more popular the answer according to the survey, the higher the score. Each team then chooses a different player for the next ten questions, and the game continues as before. At the end the scores are added up, and the team with the highest score is declared the winner.

Instructional Objectives/Types of Communicative Skills: This game is clearly useful in building up the ability to understand and respond to target language messages. This type of activity consequently develops fluency. Vocabulary is also practised.

Game: **What's My Line?**

Rules/Procedures: To play the classroom version of this game, each student is given a secret identity or occupation. The student is then interviewed in the target language by members of two class

teams: for example, "Are you a Canadian?"; "Are you a man or a woman?"; and so on. The questions to be asked by each team are limited to some number or time period. The first team to guess the identity or occupation wins.

Instructional Objectives/Types of Communication Skills: The primary objective of this game is to get the students to use the language by asking appropriate questions. Obviously, such a game will require a non-elementary knowledge of the target language and is therefore recommended for intermediate and advanced learners. As any interactional game, this is an enjoyable classroom activity which aims to develop oral fluency.

There are many other well-known games that can be found outside of the television medium: for example, board games such as *Clue*, various card games, and often-played games such as *Charades* and the *Millionaire's Game*. Let's look briefly at the latter two.

Game: **Charades.**

Rules/Procedures: The class can be divided into two teams once again, and the object is to guess a word or expression that a member of each team must act out in pantomime. Team members are allowed to ask questions and make statements in the target language. The words or expressions are prepared in advance by the teacher and put into a box from which each team draws. The team taking the least time overall to guess the answers wins.

Instructional Objectives/Types of Communicative Skills: By tying the words and expressions to some theme or unit, the primary objective of this game is to review vocabulary. However, since it requires the students to participate verbally in finding a solution, it also encourages the use of the language in an autonomous and meaningful way.

Game: **The Millionaire's Game.**

Rules/Procedures: A series of cards marked *easy-medium-difficult* is prepared by the teacher — each containing questions on, say, target language culture, on word definitions, and so on. The easy questions might be assigned a value of 5 points, the medium ones 10 points, and the difficult ones 20 points. The class is divided again into two teams. Each player from a team chooses a card, and the total, if the answer is correct, is added to the team's score; or the total is subtracted from the team's score, if the answer is incorrect. The team with the highest score at the end wins.

Instructional Objectives/Types of Communicative Skills: In addition to reviewing vocabulary, this game is obviously useful in developing listening and comprehension skills. By encouraging team discussion of a question, communicative exchanges can also be promoted among students.

Teacher-Made Games of Any Type

By way of summary, it should be emphasized that interactional games, like discrete-point and global puzzles, can be easily devised by the teacher. This allows the teacher the possibility of meeting certain communicative demands and instructional objectives in a stimulating and involving way. As has already been pointed out in previous chapters, such games should be used judiciously by interspersing them into a curriculum at opportune points.

The teacher can easily make up many more interactional games if the following basic principle is understood: Divide the class into two teams that are required to solve some problem together. Many excellent suggestions can be found in the ever-increasing literature on classroom game-playing (for example, Wright, Betteridge, and Buckby 1979, Hendrickson 1980, 1983, Omaggio 1982, Porter Ladousse 1983). Essentially, games promote much needed communicative exchanges in the classroom by requiring students to make use of information given by other students or the teacher in order to solve some problem. They also create contexts in which the language is used in a meaningful way. I have found that if used judiciously, the students will want to participate actively, and consequently will tend to make more of an

effort to understand what others are saying and to express themselves freely. As Wright, Betteridge, and Buckby (1979:2) observe, game-playing is meaningful because the students respond in a positive way: "If they are amused, angered, challenged, intrigued or surprised the content is clearly meaningful to them."

5

Concluding Remarks

Really effective language teaching is not tied methodologically to any one interpretation of the teaching process or of the learning process.

Halliday (1979:241)

To enhance classroom learning the teacher should try to discover which techniques are suitable for different learning tasks, as well as for specific groups of learners. Language learning involves many variables: it presupposes some mechanical practice with words and structures; it implies some comparisons with the native language and culture; it entails the ability to use the target language in purposeful communication; and so on. It would seem logical, therefore, to draw the conclusion that classroom teaching should be as flexible and as adaptive as possible. The theme of this book has been the flexibility and adaptiveness that can be obtained from the use of problem-solving activities in the classroom. To conclude, it might be useful to summarize in the form of a series of "pedagogical maxims" so to speak, the main points associated with the use of such activities.

1. They are learning enhancers.

The psychological literature in comparative areas of education, together with the classroom experiences of many teachers, suggest that puzzles and games are beneficial to language learning. However, as discussed in the opening chapter, research is lacking in this area, and some key issues associated with game-playing in the language classroom will have to be looked at more empirically and critically in the future.

2. They are motivational stimuli.

These activities can be incorporated into a curriculum at appropriate spots to break the predictable pedagogical routine and to inject a fun element into the learning process. The few studies that exist on game-playing in the second language classroom (see the first chapter) show that game-playing fosters a positive attitude towards the language being learned.

3. They can be easily constructed and keyed to instructional objectives.

Puzzles can be designed with either discrete-point or global learning objectives. Games extend these pedagogical goals and add an interactional component. Once the learning task has been determined, the teacher can select the appropriate puzzle or game to accomplish it. Many of the puzzles and games should be used after initial learning has occurred. They are, therefore, useful primarily as recall and reinforcement devices.

4. They must be synchronized to the learners' age and level of competence.

Puzzles and games are effective only if they can be solved by the learners. Although higher degrees of difficulty can be built into any puzzle or game, the activity should not be beyond the students' capabilities.

5. They should be used judiciously.

Although these activities can be used to motivate students and to reinforce learning, they should be used only together with other kinds of practice devices. They should never be employed as "time-fillers." The learners should be made to understand that they are part of the curriculum like other exercises and drills. The teacher should also keep in mind that too much use of puzzles and games is not desirable. They should be interspersed into a program at appropriate points. To maintain interest, the teacher should always diversify the types of puzzles and games used.

6. They should involve the students as much as possible.

Many of the puzzles and games described in this book can be constructed by the students themselves. This will shift the focus from language teaching to language learning, since students always seem to learn better when they are involved directly in the preparation of course materials (as shown by Naiman, Fröhlich, Stern, and Todesco 1978).

As a final word, I would like to emphasize that the use of puzzles and games does not constitute a methodological panacea. Problem-solving activities aim to achieve the same kinds of learning objectives of many mechanical language drills. However, if used with discretion, they do seem to make the classroom a lively learning environment.

References

Adams, John Paul. *We Dare You to Solve This!* New York: Berkley Highland, 1957.

Arnold, Henri, and Lee, Bob. *Jumble.* New York: Signet, 1974.

Bergerson, Howard W. *Palindromes and Anagrams.* New York: Dover, 1973.

Borgman, Dmitri. *Language on Vacation.* New York: Charles Scribner's Sons, 1965.

Bredemeier, Mary, and Greenblat, Cathy Stein. "The Educational Effectiveness of Simulation Games: A Synthesis of Findings." *Simulation and Games,* 12 (1981), 307-22.

Bressan, Dino. "Crossword Puzzles in Modern Language Teaching." *Audio-Visual Language Journal,* 8 (1970), 93-5.

Brown, H. Douglas. *Principles of Language Learning and Teaching.* Englewood Cliffs, N.J.: Prentice-Hall, 1980.

Caré, J. M., and Debyser, F. *Jeu, langage et créativité.* Paris: Hachette, 1978.

Clark, H. H. "Linguistic Processes in Deductive Reasoning." *Psychological Review,* 76 (1969), 387-404.

Crawshaw, Bernard E. *Let's Play Games in French.* Skokie, Ill.: National Textbook Co., 1972.

Crescimbeni, Joseph. *Treasury of Classroom Arithmetic Activities.* West Nyack, N.Y.: Parker, 1969.

Cruickshank, D. R., and Telfer, R. "Classroom Games and Simulations." *Theory into Practice,* 19 (1980), 75-80.

Dakin, J. *The Language Laboratory and Language Learning.* London: Longman, 1973.

Danesi, Marcel. "Puzzles in Language Teaching." *Canadian Modern Language Review,* 35 (1979), 269-77.

_____. "Mathematical Games in Foreign Language Courses." *Rassegna Italiana di Linguistica Applicata*, 12 (1980), 195-204.

____. "Curriculum Development in Heritage Language Courses." In *Proceedings of the B.C. Heritage Language Association*, pp. 1-15. Vancouver: B.C. Heritage Language Association, 1983.

De Vries, D. L., and Slavin, R. E. "Teams-Games-Tournaments: Review of Ten Classroom Experiments." *Journal of Research and Development in Education*, 12 (1978), 23-38.

Dudeney, Henry E. *The Canterbury Puzzles.* New York: Dover, 1958.

_____. *.300 Best Word Puzzles.* New York: Scribner's 1968.

Eckler, A. Ross. *Word Recreations.* New York: Dover, 1979.

Edwards, Keith J.; De Vries, David L.; and Snyder, John P. "Games and Teams: A Winning Combination." *Simulation and Games*, 3 (1972), 247-69.

Ervin, Gerard L. 1982. "Using Warm-Ups, Wind-Ups, and Fillers: *All* of Your Class Time Is Valuable." *Foreign Language Annals*, 15 (1982), 95-99.

Fixx, James F. *Solve It!* London: Muller, 1978.

Gardner, Martin. *The Sixth Book of Mathematical Games from Scientific American.* New York: Scribner's, 1971.

Glucksberg, Sam, and Danks, Joseph H. *Experimental Psycholinguistics: An Introduction.* New York: John Wiley & Sons, 1975.

Halliday, M. A. K. "The Teacher Taught the Student English: An Essay in Applied Linguistics." In *Linguistic and Literary Studies in Honor of Archibald A. Hill*, ed. M. A. Jazayery et al., Vol. 4, pp. 233-42. The Hague: Mouton, 1979.

Heinberg, Paul. "Measures of Speech Communication Proficiency." In *Focus on Classroom Behavior*, eds. W. Scott MacDonald and Gilfred Tanabe, pp. 23-30. Springfield, Ill.: Charles C. Thomas, 1973.

Hendrickson, James M. "Listening and Speaking Activities for Foreign Language Learners." *Canadian Modern Language Review*, 36 (1980), 735-48.

_____. "Listening and Speaking Activities for Foreign Language Learners: Second Collection." *Canadian Modern Language Review*, 39 (1983), 267-84.

Hovanec, Helene. *The Puzzler's Paradise.* New York: Paddington, 1978.

Hupb, Loretta B. *Let's Play Games in Spanish.* Skokie, Ill.: National Textbook Co., 1974.

Huttenlocker, J. "Constructing Spatial Images: A Strategy in Reasoning." *Psychological Review*, 75 (1968), 550-60.

Irwing, Patricia. "Games for Use at the Intermediate Level." *Canadian Modern Language Review*, 38 (1982), 726-7.

Kidder, Steven J., and Guthrie, John T. "Training Effects of a Behaviour Modification Game." *Simulation and Games*, 3 (1972), 17-28.

Latorre, G., and Baeza, G. "The Construction and Use of EFL

Crossword Puzzles." *English Language Teaching Journal,* 30 (1975), 45-55.

Lee, W. R. *Language Teaching Games and Contests.* Oxford: Oxford University Press, 1965.

Livingston, Samuel A., and Kidder, Steven J. "Role Identification and Game Structure: Effects on Political Attitudes." *Simulation and Games,* 4 (1973), 131-44.

Maley, Alan, and Grellet, François. *Mind Matters.* Cambridge: Cambridge University Press, 1981.

Melnyk, Jocelyne. "Puzzle Corner." *OMLTA Newsletter,* (1980a), 3.6.

_____. "Word Tic-Tac-Toe." *OMLTA Newsletter* (1980b), 2.5.

Mollica, Anthony. *Joie de vivre.* Toronto: Copp Clark, 1976.

_____. "Games and Language Activities in the Italian High School Classroom." *Foreign Language Annals,* 12 (1979), 347-54.

_____."Visual Puzzles in the Second-Language Classroom." *Canadian Modern Language Review,* 37 (1981), 583-622.

Mollica, Anthony; Stefoff, Donna; and Mollica, Elizabeth. *Fleurs de lis.* Toronto: Copp Clark, 1973.

Naiman, N.; Fröhlich, M.; Stern, H. H.; and Todesco, A. *The Good Language Learner.* Toronto: OISE, 1978.

Omaggio, Alice. *Games and Simulations in the Foreign Language Classroom.* Washington, D.C.: Center for Applied Linguistics, 1978.

_____. "Using Games and Interactional Activities for the Development of Functional Proficiency in a Second Language." *Canadian Modern Language Review,* 38 (1982), 515-46.

Palmer, Adrian S. "Communication Games and the Teaching of Reading." Paper Read at the 10th Annual TESOL Convention, N.Y.,1976.

_____."Measures of Achievement, Communication, Incorporation and Integration for Two Classes of Formal EFL Learners." *RELC Journal,* 12 (1981), 37-9.

Palmer, Adrian, and Rodgers, Theodore S. "Games in Language Learning." *Language Teaching,* 16 (1983), 2-21.

Phillips, Hubert. *My Best Puzzles in Thought and Logic.* New York: Dover, 1961.

Porter Ladousse, Gillian. *Speaking Personally.* Cambridge: Cambridge University Press, 1969.

Reid, Norman. "Simulation Techniques in Secondary Education: Affective Outcomes." *Simulation and Games,* 11 (1980), 107-20.

Rodgers, T. S. "A Framework for Making and Using Language Teaching Games." In *Guidelines for Language Games,* pp. 1-7. Singapore: RELC, 1981.

Rivers, Wilga M. *Communicating Naturally in a Second Language.* Cambridge: Cambridge University Press, 1983.

Schloss, Brigitte. *Jeux linguistiques.* Toronto: OISE, 1977.

Schmidt, Elisabeth. *Let's Play Games in German.* Skokie, Ill.: National

Textbook Co., 1977.
Scribner, S. "Modes of Thinking and Ways of Speaking: Culture and Logic Reconsidered." In *Thinking: Readings in Cognitive Science,* ed. P. N. Johnson-Laird and P. C. Wason, pp. 483-500. Cambridge: Cambridge University Press, 1977.
Smullyan, Raymond. *What Is the Name of this Book?* Englewood Cliffs, N.J.: Prentice-Hall, 1978.
Stern, H. H. *Fundamental Concepts of Language Teaching.* Oxford: Oxford University Press, 1983.
Sternberg, Robert J. "Intelligent Research at the Interface between Differential and Cognitive Psychology: Prospects and Proposals." *Intelligence,* 2 (1978), 195-222.
_____. "The Nature of Mental Abilities." *American Psychologist,* 33 (1979a), 214-30.
_____. "Stalking the IQ Quark." *Psychology Today,* 13 (1979b), 42-52.
Sternberg, Robert J., and Davidson, Janet E. "The Mind of the Puzzler." *Psychology Today,* 16 (1982), 37-44.
Summers, George J. *Test Your Logic.* New York: Dover, 1972.
Wolfe, David E. "Teacher-Made Crossword Puzzles." *Audio-Visual Language Journal,* 10 (1972), 177-81.
Wright, Andrew; Betteridge, David; and Buckby, Michael. *Games for Language Learning.* Cambridge: Cambridge University Press, 1979.
Wylie, C. R. *101 Puzzles in Thought and Logic.* New York: Dover, 1957.
Yalden, Janice. *Communicative Language Teaching: Principles and Practice.* Toronto: OISE Press, 1981.

Other publications in the Language and Literacy Series:

Jim Cummins, *Bilingualism and Minority-Language Children*
Janice Yalden, *Communicative Language Teaching: Principles and Practice*
Barbara Burnaby, *Language in Education among Canadian Native Peoples*
Sharon Lapkin, Merrill Swain, and Valerie Argue, *French Immersion: The Trial Balloon that Flew*

BEST COPY AVAILABLE

0-7744-0289-X

OISE Press

The Ontario Institute for Studies in Education